

ABSTRACT OF THE DISCLOSURE

A number of nonlinear optical fibers are configured in a parallel configuration. The fibers are pumped with optical pumps having a wavelength slightly longer than the zero dispersion wavelength for each fiber. By a demultiplexer optical signals within a certain wavelength interval are admitted to enter and exit the different fibers, in which parametric amplification can be achieved. By selecting the pump wavelength outside each corresponding interval crosstalk will be suppressed. The nonlinear fibers can be pumped by separate laser pumps, or two or more of the nonlinear fibers can be pumped by a common pump, depending on the different fiber properties. By tailoring fiber properties such as the zero dispersion wavelength, the second order dispersion coefficient and the fourth order dispersion coefficient, beneficial amplification characteristics can be achieved in different wavelength intervals.

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